ABSTRACT

A process, apparatus, and method for computerized detection, tracking, and feedback control of nutritional supplements in an animal, including humans relies on Raman scattering effects on skin or other tissues to determine the content of carotenoids or other nutrients as evidenced in that skin. Serum levels of nutrients may vary dramatically with time, but skin tissues may average such nutrition over time. Skin and other tissues may be scanned with light to produce accurate measurements of carotenoids or other nutrients accumulated in the skin based on the Raman scattering affect of those nutrients in the skin. A score can be derived from a properly calibrated bio-photonic scanner to reflect an averaged effective uptake of the detected nutrient (e.g. such as the carotenoid example). This feedback control is thus much more immediate than any anecdotal, long-term, report of general well being, which would vary so much between individuals as to be nearly impossible to ascertain on an individual level, and difficult, invasive, and expensive to determine individually in a conventional clinical procedure.